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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,063	12/09/2003	Taeho Son	46102	2962

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Christian C. Michel
Roylance, Abrams, Berdo & Goodman, L.L.P.
Suite 600
1300 19th Street, N.W.
Washington, DC 20036

EXAMINER	
MCCALL, ERIC SCOTT	
ART UNIT	**PAPER NUMBER**
2855	

DATE MAILED: 09/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/730,063	SON, TAEHO	
	Examiner	Art Unit	
	Eric S. McCall	2855	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 June 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 5-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 7* is/are rejected.

7)☒ Claim(s) *5 and 6* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/27/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

APPARATUS AND METHOD FOR MEASURING THE AMOUNT OF FUEL IN A VEHICLE USING TRANSMISSION LINES

FINAL OFFICE ACTION

In response to the Applicant's amendment dated June 27, 2005.

CLAIMS

In view of the Applicant's amendments, all claim rejections as set forth in the previous office action (Jan. 25, 2005) have been overcome. However, the following now applies:

Objections

Claim 2 is objected to because the phrase "said measuring unit" suggests that a measuring unit has been previously set forth but has not.

35 U.S.C. § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mongan (3,010,318) in view of Davis (6,777,956).

With respect to claim 1, Mongan teaches an apparatus for measuring an amount contained in a tank, comprising:

transmission lines (16) provided within said tank (10) and being supplied with a high-frequency wave (Fig. 1);

a measuring circuit for measuring an amplitude of a reflective wave of the high-frequency wave on said transmission lines, said amplitude being varied in accordance with an impedance of the transmission lines (col. 2, lines 4-19),

wherein said impedance varies in accordance with an amount contained in said tank (col. 2, lines 12-14).

However, Mongan fails to explicitly teach said tank being that of a fuel tank and the liquid therein being that of fuel.

Davis, on the other hand, discloses an apparatus wherein a fuel amount contained in a fuel tank is determined.

Thus, it would have been obvious to one having ordinary skill in the art armed with said teachings to use the apparatus of Mongan to determine the amount of fuel within a fuel tank.

The motivation being that Mongan discloses that the apparatus thereof can be used to measure the level of a variety of liquids in a variety of different types of containers wherein measuring a fuel level within a fuel tank is a very well known liquid level measurement as shown by Davis.

With respect to claim 2, Mongan suggests a measuring unit inherently comprising a housing, a circuit substrate including a measuring circuit, said circuit substrate being provided within said housing (Fig. 1), said apparatus further comprising a sealing member (34) in a connecting portion between said transmission lines and said measuring unit.

With respect to claim 3, Mongan discloses a high-frequency generating module for generating a signal applied to said transmission lines (Fig. 1); a reflective wave detecting module for detecting a reflective signal in said transmission lines, and for calculating a reflective coefficient by comparing the reflective signal with the signal from said high-frequency

generating module and for calculating a depth of the liquid (col. 2, lines 23+); an amplifier for amplifying the output signal from said reflective wave detecting module (Fig. 1).

Paralleling the reasoning behind the above modification, Davis discloses a connector for transmitting said amplified signal to an instrument panel of said vehicle as claimed.

With respect to claim 7, Mongan suggests the transmission lines (16) are selected from a group of high-frequency transmission lines consisting of a coplanar strip (Fig. 1).

Allowable Subject Matter

Claims 5 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

In view of the Applicant's amendments which have significantly changed the scope of the claimed invention, the Applicant's arguments are deemed moot in view of the new grounds of rejection.

CONCLUSION

The Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Eric S. McCall whose telephone number is (571) 272-2183.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Eric S. McCall
Primary Examiner
Art Unit 2855
Sep. 14, 2005